

Title (en)

A method for preparing a membrane to be assembled in a membrane electrode assembly and membrane electrode assembly

Title (de)

Verfahren zur Herstellung einer Membran für eine Membran-Elektroden-Anordnung und Membran-Elektroden-Anordnung

Title (fr)

Procédé de fabrication d'une membrane pour l'ensemble electrode-membrane et ensemble membrane-électrode

Publication

EP 1689014 A1 20060809 (EN)

Application

EP 05002446 A 20050204

Priority

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Abstract (en)

A method for preparing a membrane to be assembled in a membrane electrode assembly is disclosed, comprising the steps of: a) irradiating sections (4) of a polymer film (2) with electromagnetic and/or particle radiation with a predetermined irradiation profile in order to both define irradiated sections (4) and to form reactive centers, i.e. radicals, in said irradiated sections (4) of the membrane; thereby separating the irradiated sections (4) from each other by separation bands (6) of un-irradiated membrane sections; b) exposing the film (2) comprising the irradiated sections (4) to a monomer or a mixture of monomers amenable to radical polymerization in order to achieve the formation of a graft copolymer in said irradiated sections (4). This method and the respective assembly yield a membrane that has, due to the profile of the irradiation, separated regions of distinct and appropriate properties to serve as a fuel cell electrolyte. It is therefore possible to generate within the same membrane layer or membrane film sections which have in its swollen state proton-conductive properties adjacent to the separation band sections which are the remaining original insulating starting material. This allows to generate within a single layer a plurality of separate fuel cells. Furthermore, this method allows to achieve additional property gradients, such as conductivity, water uptake, etc., within the same "activated" section and also over the thickness of the membrane for the purpose of asymmetric grafting.

IPC 8 full level

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CPC (source: EP US)

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